CLAIMS

1. A partitioned exciter system for use with an aircraft engine, comprising:

a low-energy charging circuit having an input and an output, said charging circuit being operable to utilize operating power received on said input to supply a high voltage, low current charging signal on said output;

a high-energy discharge circuit including an input, an igniter, and a number of electrical components, said discharge circuit input being connected to said charging circuit output to receive said charging signal, wherein said electrical components include an energy storage device for storing electrical energy received from said charging signal and a switching device for supplying said stored energy to said igniter; and

a low-energy electrical cable connecting said charging circuit output with said discharge circuit input.

2. The exciter system of claim 1, wherein said charging and discharge circuits are remotely located from each other on an aircraft having a fuselage, wings, and at least one engine, with said discharge circuit being located at the engine.

3. The exciter system of claim 2, wherein said low-energy charging circuit is located within the aircraft fuselage and said low-energy cable extends from the aircraft fuselage into one of the aircraft wings.

4. The exciter system of claim 1, further comprising one or more protective devices shielding said low-energy charging circuit together with other electrical circuitry.

5. The exciter system of claim 1, wherein said low-energy charging circuit includes a fly-back transformer.

6. The exciter system of claim 1, wherein said charging circuit supplies DC voltage to said discharge circuit via said cable at a current of one amp or less.

7. The ignition exciter system of claim 6, wherein said current is less than or equal to 100 milliamps.

8. The exciter system of claim 1, wherein said energy storage device is a capacitor.

9. The exciter system of claim 1, wherein said switching device is a spark gap.

10. The exciter system of claim 1, wherein said high-energy discharge circuit further includes a pulse-stretching inductor.

11. The exciter system of claim 1, wherein said high-energy discharge circuit further includes a resistor that provides a ground reference for at least a portion of said discharge circuit.

12. The exciter system of claim 1, wherein said low-energy electrical cable is a coaxial cable.

13. The exciter system of claim 1, wherein all of said electrical components within said discharge circuit are passive components.

14. The exciter system of claim 1, further comprising a housing connected to said low-energy electrical cable and having an output connector connected to said igniter, wherein said electrical components of said discharge circuit are located within said housing.

15. The exciter system of claim 14, wherein said electrical components are sealed within said housing.

16. The exciter system of claim 15, wherein said electrical components are potted within said housing.

17. The exciter system of claim 14, wherein said output connector is directly attached to said igniter.

18. An exciter system for use with an aircraft engine, said system comprising:

a charging circuit having an output and being operable to supply a charging signal on said output;

a housing having first and second openings with a connector disposed in said second opening;

a discharge circuit being at least partially contained within said housing and including:

an input for receiving said charging signal,

an energy storage device contained within said housing for storing electrical energy received from said charging signal,

a switching device connected to said connector, and

an igniter directly attached to said connector,

wherein said energy storage device and said switching device are sealed within said housing, and wherein said igniter is electrically connected to said switching device via said connector; and

an electrical cable connected to said charging circuit output and to said discharge circuit input via said first opening of said housing, wherein said charging and discharge circuits are remotely located from each other.

19. The exciter system of claim 18, wherein said charging circuit is operable to provide said charging signal as a high voltage, low current charging signal and wherein said electrical cable is a high voltage, low energy cable.

20. The exciter system of claim 19, wherein said charging circuit supplies DC voltage to said discharge circuit via said cable at a current of 100 milliamps or less.

21. The exciter system of claim 18, wherein said charging and discharge circuits are remotely located from each other on an aircraft having a fuselage, wings, and at least

one engine, with said charging circuit being located within the aircraft fuselage, said discharge circuit being located at the engine, and said cable extending from the aircraft fuselage into one of the aircraft wings.

22. The exciter system of claim 18, further comprising one or more protective devices shielding said charging circuit together with other electrical circuitry.

23. The exciter system of claim 18, wherein said connector comprises a socket connected over a terminal end of said igniter.

24. The exciter system of claim 18, wherein said housing is generally cylindrical.

25. The exciter system of claim 24, wherein said first opening is located on a circumferential surface of said generally cylindrical housing and said second opening is located on an end surface of said housing.

26. The exciter system of claim 18, wherein said housing contains a number of electrical components that are a part of said discharge circuit and wherein all of said electrical components are passive devices.

27. An exciter system for use with an aircraft engine, said system comprising:

a first housing;

a charging circuit located within said first housing and having one or more active components and an output for supplying a charging signal from said housing;

a second housing;

a discharge circuit being at least partially contained within said second housing and including:

an input for receiving said charging signal,

an energy storage device contained within said second housing for storing electrical energy received from said charging signal,

a switching device for supplying said stored energy, and

an igniter directly connected to said connector,

an electrical cable connected between said first and second housings to transmit said charging signal from said charging circuit to said discharge circuit;

wherein said first housing provides shielding of said one or more active components and said second housing is located near said igniter, whereby said exciter system is partitioned between said first and second housings.

28. The exciter system of claim 27, wherein said charging circuit is operable to provide said charging signal as a high voltage, low current charging signal and wherein said electrical cable is a high voltage, low energy cable.

29. The exciter system of claim 28, wherein said charging circuit supplies DC voltage to said discharge circuit via said cable at a current of 100 milliamps or less.

30. The exciter system of claim 27, wherein said charging and discharge circuits are remotely located from each other on an aircraft having a fuselage, wings, and at least one engine, with said charging circuit being located within the aircraft fuselage, said discharge circuit being located at the engine, and said cable extending from the aircraft fuselage into one of the aircraft wings.

31. The exciter system of claim 27, further comprising one or more protective devices shielding said charging circuit together with other electrical circuitry.

32. The exciter system of claim 27, further comprising a connector disposed in an opening in said housing, wherein said connector is directly attached to said igniter.

33. The exciter system of claim 27, wherein said energy storage device and said switching device are sealed within said second housing,

34. The exciter system of claim 33, wherein said second housing comprises a metal can having a metal lid covering an open end of said can.

35. The exciter system of claim 34, wherein said energy storage device and said switching device are potted within said can.

36. The exciter system of claim 27, wherein said housing contains a number of electrical components that are a part of said discharge circuit and wherein all of said electrical components are passive devices.

37. A discharge circuit apparatus for use as a part of an exciter system, comprising:

a housing comprising a metal can and a metal lid, said can having a bottom wall, at least one side wall integral with said bottom wall, and an open end, said lid covering said open end and being electrically connected to said can;

first and second openings in said housing;

a discharge circuit located within said housing, said discharge circuit having an input for receiving operating power via said first opening and an output for providing an ignition pulse via said second opening; and

a connector disposed in said second opening and connected to said output of said discharge circuit.

38. The discharge circuit apparatus of claim 37, wherein said discharge circuit includes a ground connection that is electrically shorted to said metal can and said metal lid.

39. The discharge circuit apparatus of claim 37, wherein said discharge circuit includes an energy storage device and a switching device sealed within said can.

40. The discharge circuit apparatus of claim 39, wherein said discharge circuit includes a number of passive electrical devices potted within said can.

41. The discharge circuit apparatus of claim 37, wherein said connector comprises a socket connected over a terminal end of said igniter.

42. The discharge circuit apparatus of claim 37, wherein said metal is generally cylindrical.

43. The discharge circuit apparatus of claim 42, wherein said first opening is located on a circumferential surface of said can and said second opening is located on said lid.

44. A method of assembling a housed discharge circuit, comprising the steps of:

providing a metal can that includes a bottom wall, at least one side wall that is integral with said bottom wall, and an open end;

providing a lid that fits over said open end;

attaching a connector into an opening in said lid;

mounting a discharge circuit on an inside surface of said lid;

electrically connecting said discharge circuit to said connector; and

mounting said lid over said open end of said can with said discharge circuit being enclosed in said can between said bottom wall and said lid.

45. The method of claim 44, wherein said attaching step further comprises attaching an output igniter socket into said opening.

46. The method of claim 44, further comprising the step of connecting a cable to said discharge circuit via an opening in said can.

47. The method of claim 46, wherein said cable is a coaxial cable and wherein said connecting step further comprises connecting a central conductor of said coaxial cable to said discharge circuit and electrically connecting an outer conductor of said coaxial cable to said can.

48. The method of claim 44, further comprising the step of potting said discharge circuit within said can.

49. The method of claim 44, wherein the step of mounting said discharge circuit comprises connecting said discharge circuit to said connector via an electrical conductor.

50. The method of claim 44, further comprising the step of electrically connecting a ground connection of said discharge circuit to said can and said lid.

51. The method of claim 44, further comprising the step of forming said discharge circuit from passive components that include an energy storage device and a switching device.